QUARTERLY REPORT TO NASA ON

LANDSAT 2 PROJECT NO.29020

HYDROLOGICAL INVESTIGATIONS IN NORWAY

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INTRODUCTION

LANDSAT 2 images of Southern Norway from February and March 1975 have been studied. The scenes show a winter situation, and at that time of the year, the snowmelting is neglectable.

DESCRIPTION AND PRELIMINARY RESULTS

Except for a rim along the southeastern coast and the outer Oslofjord lowland,the area is snowcovered. These February and March images are the first LANDSAT winter pictures of the Oslo region. The winter scenes reflect interesting features.

Most of Norway experienced an extremly mild winter in 1975, and the LANDSAT 2 images do show the resulting extraordinary icesituation. Fjords, lakes and rivers that during winter time nearly always are completely icecovered, were this year icefree or only partly icecovered. Changes that have taken place during two LANDSAT cycles, have been determined by comparing the 14. February and 21. March images.

The snow on the LANDSAT 2 images do strongly enhance features like roads and urban settlements. One illustrating example is seen on the flat,open terrain east of lake Mjøsa. Here small villages and narrow roads are clearly seen,while they are completely invisible on snowfree images.

A study of scene no.2024-10031 and 2024-10035 of 15.February proves to be of geological interest. This is because of the enhancement introduced through the combination of low solar angle and snowcover. These LANDSAT images should be very valuable as supplementary material for the structure and lineament mapping already done on the basis of LANDSAT 1 images of Norway from 1972 and 73.

I find the quality of LANDSAT 2 imagery superior to that of number one.

The study of spring and summer images will now be initiated for mapping the decrease in areal extent of the snowcover and determination of snowlines. The LANDSAT 2 data will be compared with oblique angle aerial photographs of selected areas taken simultaniously with LANDSAT 2 passes over Norway. Ground truth measurements and data will be used in the further interpretation of the LANDSAT 2 images.

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Oslo, 28.August 1975